

CLAIMS

1. Apparatus for empirically adjusting access to a database,
said apparatus comprising:

coupled to the database, a database discovery module
for determining database structure and authorized
accesses to the database;

coupled to the database, a command monitoring module
for monitoring actual accesses to the database; and
coupled to the database discovery module and to the
command monitoring module, an analysis module for
comparing actual accesses with authorized accesses.

2. Apparatus of claim 1 further comprising, coupled to the
database discovery module and to the analysis module, a storage
area for accumulating data generated by the command monitoring
module.

3. Apparatus of claim 1 wherein the command monitoring
module is a sniffer.

4. Apparatus of claim 1 wherein the database is a relational
database accessed by a structured query language.

5. A method for empirically adjusting access to a database,
said method comprising the steps of:

discovering authorized accesses to the database;

observing actual accesses to the database;

comparing actual accesses with authorized accesses; and

1 adjusting authorized database accesses taking into
2 account results of the comparing step.

3 6. The method of claim 5 further comprising the step of
4 generating at least one third party report based upon observing
5 actual accesses to the database.

6 7. The method of claim 5 wherein the adjusting step
7 comprises offering to deny database access to operations by
8 certain users on database tables and columns that were authorized
9 but were not observed during the observing step.

10 8. The method of claim 5 wherein the discovering step
11 uncovers any:

12 tables of the database;
13 columns of the database;
14 authorized users of the database;
15 views of the database;
16 stored procedures of the database;
17 user-defined functions of the database; and
18 triggers of the database.

19 9. The method of claim 5 wherein the adjusting step
20 comprises at least one of:

21 suggesting revised database access control settings to
22 a database administrator;
23 automatically hardening the database for all times of
24 day;

1 automatically hardening the database selectively based
2 on time of day;
3 alerting a database administrator; and
4 continuing to monitor accesses to the database after
5 conclusion of the observing step.
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7 10. The method of claim 9 wherein the database is
8 automatically hardened using standard SQL commands.

9 11. The method of claim 9 wherein the database is
10 automatically hardened using database specific application
11 programming interfaces.

12 12. The method of claim 5 wherein the observing step has a
13 preselected duration.
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15 13. The method of claim 5 wherein the observing step is
16 performed until a preselected quantity of actual accesses have
17 been observed.

18 14. A computer-readable medium containing computer program
19 instructions for empirically adjusting access to a database, said
20 computer program instructions performing the steps of:

21 discovering authorized accesses to the database;
22 observing actual accesses to the database;
23 comparing actual accesses with authorized accesses; and
24 adjusting authorized database accesses taking into
25 account results of the comparing step.
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1 15. The computer-readable medium of claim 14 further
2 comprising the step of generating at least one third party report
3 based upon observing actual accesses to the database.

4 16. The computer-readable medium of claim 14 wherein the
5 adjusting step comprises offering to deny database access to
6 operations by certain users on database tables and columns that
7 were authorized but were not observed during the observing step.
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9 17. The computer-readable medium of claim 14 wherein the
10 discovering step uncovers any:

11 tables of the database;
12 columns of the database;
13 authorized users of the database;
14 views of the database;
15 stored procedures of the database;
16 user-defined functions of the database; and
17 triggers of the database.
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19 18. The computer-readable medium of claim 14 wherein the
20 adjusting step comprises at least one of:

21 suggesting revised database access control settings to
22 a database administrator;
23 automatically hardening the database for all times of
24 day;
25 automatically hardening the database selectively based
26 on time of day;
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1 alerting a database administrator; and

2 continuing to monitor accesses to the database after
3 conclusion of the observing step.

4 19. The computer-readable medium of claim 18 wherein the
5 database is automatically hardened using standard SQL commands.
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7 20. The computer-readable medium of claim 18 wherein the
8 database is automatically hardened using database specific
9 application programming interfaces.

10 21. The computer-readable medium of claim 14 wherein the
11 observing step has a preselected duration.

12 22. The computer-readable medium of claim 14 wherein the
13 observing step is performed until a preselected quantity of
14 actual accesses have been observed.
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